

Drinking Water Source Protection and Land Application of Treated Wastewater

Ohio's environmental regulations protect drinking water by requiring distance between the use of treated waste water and sources of water used for public drinking water.

Public health and environmental protection require both safe sources of drinking water and the safe disposal of wastewater. One notable protection effort is to reduce the amount of wastewater transferred to streams by allowing treated wastewater to be sprayed onto the land. However, land application of treated wastewater can impact the water quality of the area's source of drinking water.

Ohio's environmental regulations help protect drinking water quality by implementing standards for the management of treated wastewater at land application sites.

Who regulates these activities?

Ohio EPA's Division of Drinking and Ground Waters (DDAGW) regulates public water systems. DDAGW also administers the Source Water Assessment and Protection (SWAP) program, which determines the protection area surrounding a drinking water source. Ohio EPA has evaluated all Ohio public water systems to identify and outline these protection areas.

Ohio EPA's Division of Surface Water (DSW) regulates wastewater treatment and reuse. DSW enforces rules establishing wastewater treatment standards to help protect drinking water sources. The standards prohibit the reuse of treated wastewater in drinking water source critical protection areas.

What is treated wastewater?

Sewage treatment generates two materials that need to be disposed of: treated wastewater and biosolids. Biosolids, discussed in another fact sheet, are the untreated solid, semisolid or liquid residue generated during the treatment of domestic sewage. Treated wastewater is the liquid, mostly water, generated during domestic sewage treatment. DSW establishes the minimum standards treated wastewater must meet prior to being discharged into the environment.

Why put treated wastewater on land?

Most treated wastewater is released to bodies of water such as rivers, streams and lakes. In some cases, the body of water is impaired and additional discharges could worsen its condition. In those instances, applying treated wastewater to land may be more environmentally protective.

When wastewater is applied to the land, growing plants and naturally occurring soil bacteria use the nutrients found in treated wastewater. Treated wastewater sprayed on the land surface may also infiltrate (seep) into the ground, replenishing the underlying aquifer.

What are the land application restrictions?

If treated wastewater does not meet Ohio's water quality standards, land application is not permitted within the emergency management zone or within 1,500 feet of a public water system's source water intake, whichever distance is greater.

Treated wastewater may not be applied to land within the inner management zone of community and non-transient non-community public water systems.



There are restrictions on applying treated wastewater within drinking water source protection areas. (Photo source: United States Geologic Survey).

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Restrictions on land application within a water system's outer management zone vary based on the classification of the treated wastewater, the type of public water system and the susceptibility of the aquifer to contamination. For example, land application of wastewater is prohibited throughout the protection area if the public water system is highly susceptible to contamination. However, it is permitted in the outer management zone if additional engineering controls and a ground water monitoring system are installed. (See figures to the right for a description of an emergency management zone, inner and outer management zones and protection areas.)

What happens when land application is temporarily stopped?

Land application of treated wastewater may need to be temporarily stopped due to equipment failures and because of specific weather conditions. Land application is also prohibited between December 1 and March 31 of every year, during winter months when the ground may be frozen or snow-covered. During these periods, the treated wastewater is diverted to temporary storage ponds.

What are the restrictions for storage ponds?

Sewage treatment plants must be able to store treated wastewater in special ponds from the first of December to the end of March. These ponds may contain thousands of gallons of treated wastewater. Although they are designed to hold water until it can be applied to land, leaks and other accidents could cause an unintentional release.

Storage ponds are not permitted within a source water protection area unless several conditions are met. Conditions include ensuring the pond is not located inside the inner management zone, as shown in the figure to the right. Ponds may not be located within the emergency management zone or within 1,500 feet of a source water intake, whichever distance is greater.

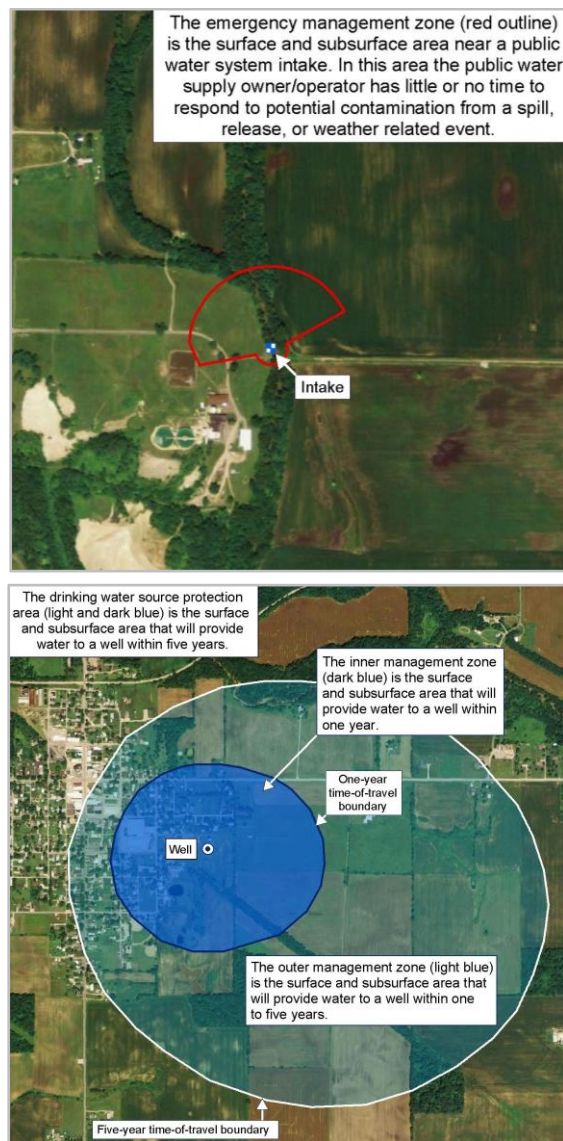
How do the restrictions protect drinking water?

Ohio EPA's land application rules for treated wastewater are focused on preventing releases of contaminants to surface and ground water in areas where natural processes may not have time to use nutrients found in treated wastewater.

Drinking water sources are protected by establishing minimum setback distances (or buffers) based on the protection area and emergency management zone. This buffer allows the wastewater operator, public water system and Ohio EPA to respond in the event of an accidental release from a storage pond or if natural processes fail to reduce the levels of nutrients in the treated wastewater.

Where are drinking water source protection areas?

To determine if an existing or proposed facility is located within a drinking water source protection area, Ohio EPA has developed a mapping application that will enable you to locate source water protection areas. The application is available online as a link on the SWAP webpage at epa.ohio.gov/ddagw. You can also contact Ohio EPA's SWAP program by emailing us at the address listed below. Please include the location of the existing or proposed facility (a map showing the location is best), the reason for your request (such as: treated wastewater application), and your contact information, including your email address.



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Additional information

- Ohio EPA, Division of Surface Water, Wastewater Permit-to-Install (PTI) Program, epa.ohio.gov/divisions-and-offices/surface-water/permitting/wastewater-permit-to-install-pti-program.
- Land Application Systems, Ohio Administrative Code Rule 3745-42-13, epa.ohio.gov/divisions-and-offices/surface-water/regulations/effective-rules.
- Well Siting, Ohio Administrative Code Chapter 9, epa.ohio.gov/divisions-and-offices/drinking-and-ground-waters/regulations/effective-rules.

Contact

For more information, contact Ohio EPA's Division of Drinking and Ground Waters, Source Water Assessment and Protection Program, at (614) 644-2752, or email whp@epa.ohio.gov. Visit the SWAP webpage at epa.ohio.gov/ddagw.

This fact sheet is intended to provide an overview of this program as it relates to drinking water source protection and the SWAP program. The activities or structures described have additional restrictions not discussed in this document. When investigating state or federal programs for information about source water protection, please consult with staff from that particular program for the most complete and current information.